



US Navy "Blue Water" Night Vision Developments

Prepared for:

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Navy NVEO Developments



Presentation Topics

- Program Organization
- Surface Navy NVEO Evolution
- Night Vision Technology Progression
- New I² Hardware Acquisitions/Upgrades
- Other New Electro-Optics Hardware
- Other Customer Support/Current Initiatives
- NSWC Crane Electro-Optics Center
- Presentation Summary
- Presentation Point of Contact



Navy NVEO Developments

Program Organization



SURFACE WARFARE NIGHT VISION & ELECTRO-OPTICS

Program Management: Surface Warfare NVEO Program Office

Code PM4

NSWC, Crane Division

Life-Cycle Engineering: Night Vision & Chem/Bio Sensors Department

Code 805

NSWC, Crane Division



Navy NVEO Developments

Program Mission



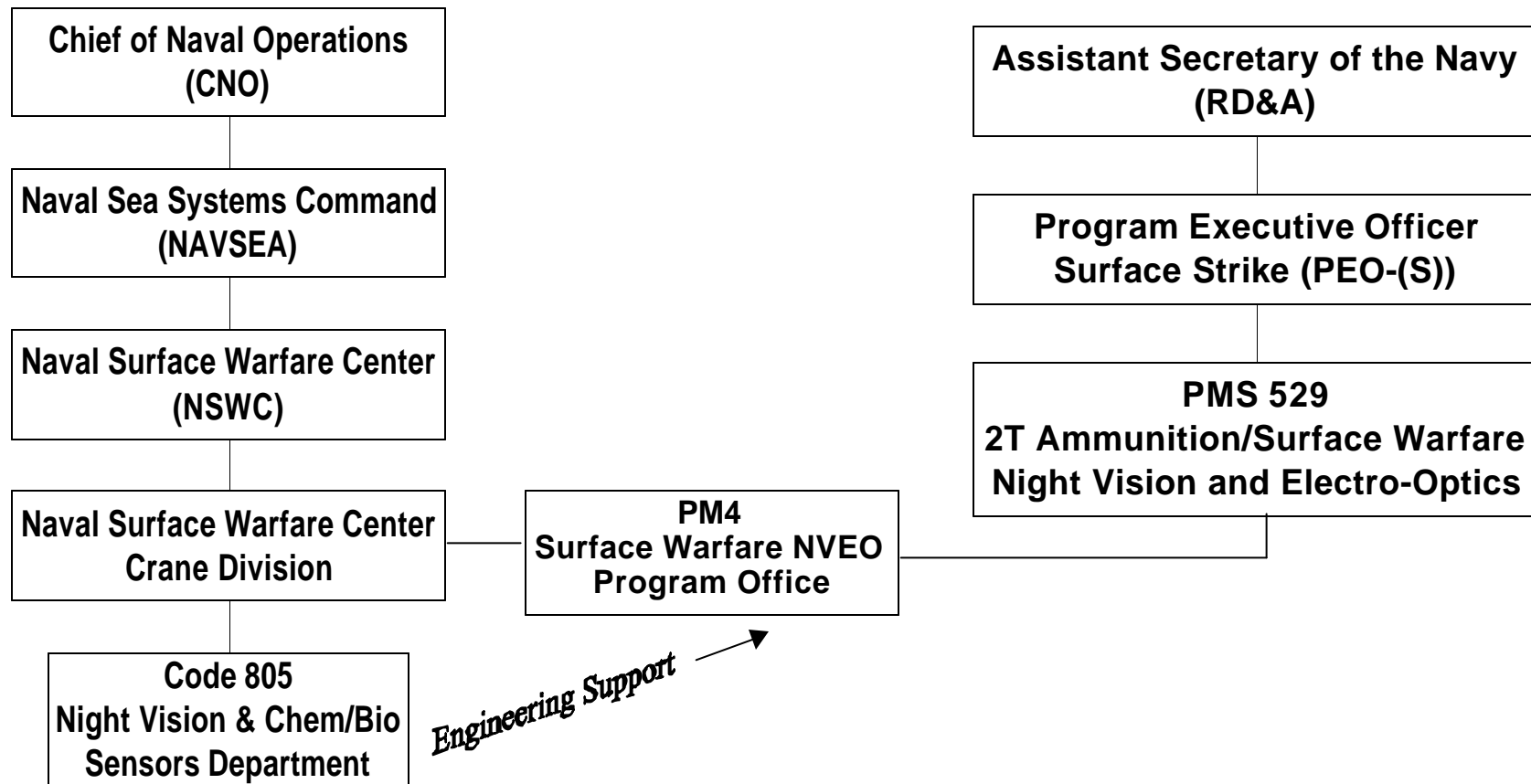
Provide management support for Night Vision Electro-Optic devices to U. S. Naval and Coast Guard forces for use during hours of *darkness and electronic silence.*

** This includes all ships and units of the U. S. Navy & Coast Guard except; NAVAIR aviator goggles, SPECWAR equipment, and U.S. Marine Corps equipment.*



Navy NVEO Developments

Program Organization





Navy NVEO Developments

Surface Navy NVEO Evolution



1970



1980



1990



2000

**Night Vision
Goggles**



**Long Range
Night Sights**



ISWS



CSWS



Pocketscope



Thermal Sight



**Eye Safe Laser
Rangefinder**



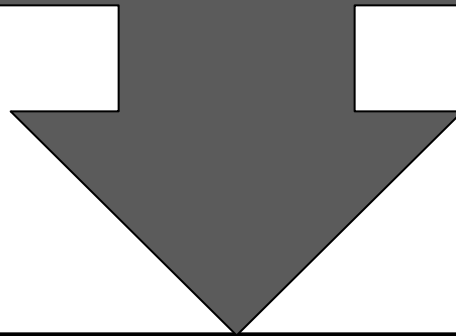


Navy NVEO Developments



Surface Navy NVEO Evolution

- Utilizing Gen II Technology for past 20 years
- No significant upgrades/procurements for past 10 years
- Insufficient Funding → Unfilled Inventory Objectives
- Worldwide proliferation of Gen II technology



***MINIMAL OPERATIONAL
PERFORMANCE CAPABILITY***



Navy NVEO Developments

Night Vision Technology Progression



- **GEN II** → **GEN III** (Tube/System Technology)
 - MTBF: 2K hrs → 7.5K - 10K hrs
 - Resolution: 28-36 lp/mm → 45-64+ lp/mm
 - Batteries: Unique → Commercial (AA)
 - Marinization: Waterproof → Submersible (2hrs @ 66')
- **GEN III** → **GEN IV** (Near-term: Filmless/Gated)
 - Decreased Halo
 - Improved Low Light Performance
 - Improved Bright Light Performance



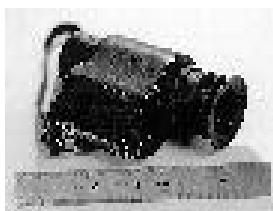
Surface Warfare NVEO Program: Regaining the Night !



Navy NVEO Developments

New I² Hardware Acquisitions/Upgrades

Handheld Sights



AN/PVS-11A → AN/PVS-18



Weapon Sights



AN/PVS-4 → AN/PVS-12A



AN/TVS-5 → AN/PVS-20





Navy NVEO Developments



New I² Hardware Acquisitions/Upgrades

Goggles

AN/PVS-5



AN/PVS-7C



AN/PVS-5



AN/PVS-15



AN/PVS-5



AN/AVS-6





Navy NVEO Developments

New I² Hardware Acquisitions/Upgrades



Observation Sight

AN/PVS-8 → AN/PVS-8A

Upgrade GEN II to GEN III





Navy NVEO Developments

New I² Hardware Acquisitions/Upgrades



AEGIS CRUISER



Navy NVEO Developments

Other New Electro-Optics Hardware



Stabilized Binoculars

- Fraser-Volpe, AN/PVS-16: 350 Systems fielded in 1997/98



Handheld Thermal Imager

- Raytheon Palm IR: 3 yr Operational Assessment initiated in 1998



Laser Systems

- Eye-Safe Laser Range Finder planned for FY01 evaluation and procurement





Navy NVEO Developments

Other Customer Support/Current Initiatives



NAVFAC (SEABEE's)

- New Hardware Acquisition: AN/PVS-7C, AN/PVS-12A, AN/PVS-20

Military Sealift Command

- New Hardware Acquisition: AN/PVS-7C

Naval Explosive Ordnance Disposal (EOD)

- New Hardware Acquisition: AN/PVS-7C, AN/PVS-18, AN/PVS-12A

Landing Craft - Air Cushioned (LCAC's) (future)

- New Hardware Acquisition: AN/PVS-15



Navy NVEO Developments

Other Customer Support/Current Initiatives



United States Coast Guard (USCG)

- Navy/USCG MOU of August 1999
 - PM4 designated Deputy Program Manager for USCG Night Vision Devices
 - Acquisition Engineering Support
 - In-Service Engineering Support
 - AIT (Shipboard Installation)
- New Hardware Acquisition
 - AN/PVS-7C
 - AN/PVS-8A
 - AN/AVS-9
 - MILCAM Thermal Imager
 - MARFLIR AN/KAX-2





Navy NVEO Developments

Other Customer Support/Current Initiatives



USCG 270' WMEC



Navy NVEO Developments

Other Customer Support/Current Initiatives



Surface Navy Informative Interactive CD-ROM

- Information/Reference Aid
- Distribution in early FY01
- Content: Theory, Mission Planning, Manuals, Trouble-shooting, System Operation,.....

Shipboard NVD Lighting Compatibility

- LPD-17 IPT Participant
- Facilitating Navy-wide Requirements Consolidation

Laser Threat Protection

- Established Laser Threat IPT w/ NRL, JPO-STC, NSWC Crane & NSWC Dahlgren
- Conducting I² Vulnerability/Susceptibility testing





Navy NVEO Developments

NSWC Crane Electro-Optics Center



64,000 F² (5,946 M²) Electro-Optics Center (Opened January 1998)

5,000 F² (465 M²) Laser Lab and Clean Room

6,000 F² (557 M²) Aviator Image Intensification Lab

5,000 F² (465 M²) Multi-Sensor Systems Lab

6,000 F² (557 M²) Chem/Bio Detection Systems Lab

800 F² (74 M²) Observation and Test Tower



Tower and Instrumented Outdoor Ranges enable real world testing of Laser and IR Systems





Navy NVEO Developments

Presentation Summary



Surface Warfare NVEO Program: Regaining the Night !

- *System Upgrades/Enhancements*
- *Acquisition Reform/New Procurements*
 - IDIQ Contracting Approach
 - Future Technology Insertion Provisions
 - Requirements Revalidation & Consolidation
- *Cooperative Partnerships*
 - USCG



Navy NVEO Developments

Presentation Summary



Surface Warfare NVEO Program: Regaining the Night !

- ***Investigating Fleet NVEO Issues***

- Laser Threat Protection
- Flight Deck/Well Deck NV Lighting Compatibility
- Controlled Inventory Item Code Change (CIIC)
 - CIIC 4 → CIIC 7

- ***Improved Information Aids***

- Interactive CD-ROM
- Paperless Environment

- ***New State-of-Art Facilities, Capabilities & Resources***



Navy NVEO Developments



Presentation Point of Contact

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NSWC Crane Webpage:

<http://www.crane.navy.mil>

Surface Warfare NVEO Program Webpage:

<http://www.crane.navy.mil/swnveo>





Navy NVEO Developments

Q&A



Questions & Answers

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